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1. An apparatus for use in a mass flow meter for immersion in a fluid, comprising:

a velocity sensor element comprising an elongate body for extending into the fluid, said elongate body comprising a housing shell, a distal end of said housing shell receiving and closely holding a spacer therein, said spacer receiving and closely holding a thin-film Resistance Temperature Detector (RTD) sensor therein, said sensor comprising an active area and electrical leads to carry current to said active area from a proximal end of said shell, said active area in substantially gap-free contact with an internal abutting spacer area.

2. The apparatus of claim 1, further comprising a second temperature sensor.

3. The apparatus of claim 2, wherein said second temperature sensor is a thin-film RTD sensor.

4. The apparatus of claim 1, wherein said spacer is in substantially gap-free contact with said housing shell.

5. The apparatus of claim 1, further comprising a temperature sensor element comprising a fluid temperature sensor.

6. The apparatus of claim 5, wherein said fluid temperature sensor element comprises two temperature sensors within a housing.

7. The apparatus of claim 6, wherein said temperature sensors are thin-film RTD temperature sensors.

8. The apparatus of claim 5, further comprising a computer processor.

9. The apparatus of claim 5, further comprising an open protective housing adapted to axially receive said velocity and temperature sensor elements.

10. The apparatus of claim 9, wherein said open protective housing includes at least one feature proximal to a distal end of either sensor element at the exterior of the housing to redirect the axial component of the velocity vector of the fluid flowing over the exterior of the housing.

11. The apparatus of claim 9, wherein a distal end of said housing is closed.

12. The apparatus of claim 10, wherein said feature comprises a shoulder section.

R.1.26 13 ~~14~~. The apparatus of claim 5, configured as an insertion flow meter.

14 ~~15~~. The apparatus of claim 5, configured as an in-line flow meter.

15 ~~16~~. The apparatus of claim 1, wherein said spacer comprises a powdered metal fabricated piece.

16 ~~17~~. The apparatus of claim 16, wherein said powdered metal comprises copper.

17 ~~18~~. The apparatus of claim 16, wherein said housing shell comprises stainless steel.

18 ~~19~~. The apparatus of claim 1, wherein said housing shell exerts radial force upon said spacer and said spacer exerts force holding said temperature sensor in stable position.

19 ~~20~~. An apparatus for use as a mass flow meter in a fluid, comprising:

a spacer having cross section defining a circular diameter and a rectangular hole, the spacer adapted to closely hold a thin-film RTD temperature sensor in said hole.

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~~22~~. The apparatus of claim 20, wherein said spacer comprises a powdered metal fabricated piece.

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~~23~~. The apparatus of claim 22, wherein said powdered metal comprises copper.

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24. The apparatus of claim 23, wherein said powdered metal comprising copper is bronze.

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25. An apparatus for use as a mass flow meter in a fluid, comprising:

a velocity sensor element comprising an elongate body for extending into the fluid, said elongate body comprising a housing shell, a distal end of said housing shell closely holding a spacer, said spacer closely holding a thin-film RTD temperature sensor, wherein said housing shell comprises steel and said spacer comprises copper.

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26. The apparatus of claim 25, wherein said steel is stainless steel.

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27. The apparatus of claim 22, wherein said spacer comprising copper is bronze.

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28. The apparatus of claim 25, wherein said sensor comprises an active area and electrical leads to carry current to said active area from a proximal end of said shell, said active area in substantially gap-free contact with an internal abutting spacer area.

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29. A method of making an apparatus for use as a mass flow meter in a fluid, the method comprising:

providing components as described in claim 25,

inserting said temperature sensor in said spacer,

compressing said spacer,

inserting said spacer into said housing shell.

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30. The method of claim 29, wherein said inserting of said spacer into said housing shell is by press-fitting.

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31. The method of claim 29, wherein said compressing of said spacer follows said inserting of said temperature sensor in said spacer.

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32. A method of measuring the mass flow of a fluid, the method comprising:

providing a flowmeter comprising at least velocity sensor element within an elongate body for extending into the fluid,

flowing the fluid substantially perpendicular to said body; and

diverting axial flow from along said body,

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33. The method of claim 32, wherein said axial flow is diverted by a feature on said elongate body.

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34. The method of claim 32, wherein said providing comprises providing a flow meter including an apparatus selected from one described in claims 1-28.